PHENIX
CONTRL ROOM SAFETY SYSTEMS

procedure name

PHENIX Procedure No. PP-2.5.5.6-06

Revision: A **Date: 2/5/2010**

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Approvals

P. Smith 2-12-10
PHENIX Date

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PHENIX Date

CAD Date

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REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	AUTHOR	APPROVED BY	CURRENT OVERSIGHT
A	First Issue (Created from an uncontrolled list put together ~2000. Determined to be obsolete. Given a procedure number to maintain record for posterity and made inactive.)	2/5/2010	n/a	D. Lynch, P. Giannotti, R. Pisani	Paul Giannotti

Draft #1- SAFETY SYSTEMS OPERATIONS

Emergency "Power Off" Button: There is one red, mushroom shaped, power crash button located on the control panel **PCR-02** of the PHENIX Control Room. This button must be manually activated for operation. Activation of this button will automatically shut off all experimental power in the IR as well as all power supplies to the main magnets. Four similar buttons, with identical power trip actions, are located in each corner of the IR, which is closed to personnel during beam-on operations.

Main Power Breaker Control Panel: this panel on **PCR-01** provides for local / manual trip actions and gives indication of breakers on, breakers off, trip confirmed and indication if trip was initiated by external signal. Power divisions are:

West Arm trip of experimental power	#5
East Arm trip of experimental power	#2
North Arm trip of experimental power	#3
South Arm trip of experimental power	#4
Central Arm trip of experimental power	#1
Utility power breaker	#8

Add section about description and operation

Position indicator light; red breaker on, green breaker off, yellow flashing breaker tripped by either manual action or by Safety System automatic action.
Trip signal, blue trip light indicates that a signal has been sent from SMCS causing a trip action to occur.
Master trip signal, trip will reset manually if no faults present in SMCS. The fault will be Indicated in **PCR-02** on the Safety Monitor Trip Indicator. This monitor has 20 level 3 trip actions.
To reset level 3 trip conditions the tripped monitor must be cleared first. Procedure for each, gas ,smoke, crash. The HVAC system is always active when running. 2min timer?

Annunciate Alarm Panel: located on top of the control cabinets. These panels provide audible alarms and visual indications. Three buttons are used to acknowledge alarms, reset and test.

Two panels are located side by side, each with 48 alarm windows (96 total). Of the 96 alarm windows, we are using 63 as follows:

1. Emergency Off Activated (from any one of 5 "Power Off" crash buttons)
2. West Carriage Main Power - Breaker Trip
3. East Carriage Main Power - Breaker Trip
4. North Carriage Main Power - Breaker Trip
5. South Carriage Main Power - Breaker Trip
6. Central Carriage Main Power - Breaker Trip

7. West Carriage Main Power - Breaker Trip Failure
8. East Carriage Main Power - Breaker Trip Failure
9. North Carriage Main Power - Breaker Trip Failure
10. South Carriage Main Power - Breaker Trip Failure
11. Central Carriage Main Power - Breaker Trip Failure

12. IR Low level Smoke Detected (Bldg. FAP at 10%; Z3, HSSD)
13. IR Fire Alarm – Zone #2 – Heat Sensors
14. IR Fire Alarm – Zone #3 – HSSD
15. Electronics Racks – Smoke detected
16. General Gas Alarm – Central Detector Gas System
17. General Gas Alarm – RICH Detector Gas system

Add additional missing alarms

Indication of any "Breaker Trip Failure" will require the Shift Leader to go into the DAQ room and manually turn off the appropriately labeled GE circuit breaker located in the power panel 480v "DP" on the south wall by either moving the breaker to the OFF position or by pressing the red RESET button tripping the breaker.

Response to any General Gas Alarm will be covered by specific procedures.

"SMCS" Trip Indicator Panel: Provides indication of individual faults to the Phenix safety system. This panel also has individual channel resets to confirm that the trip signal has been cleared. Relays cannot be reset until external trips are cleared. The following fault conditions are indicated:

1.
2.
3.
4.
5.
6.
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9.
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12.
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15.
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18.
19.

The Shift Leader will be instructed to hit the "Power Off" crash button, located in the control room, upon confirmation of a problem. Confirmation can be via surveillance TV or communication with MCR and/or Fire Rescue Group. A initial fire alarm followed by a second alarm or loss of the surveillance TV will also be sufficient cause for the Shift Leader to initiate a manual "Power Off" to all equipment.

PHENIX Fire Alarm Panel: The Notifier type fire alarm panel is used to monitor smoke detectors located in each PHENIX rack. The "smart" fire alarm panel monitors the individual address of each smoke detector and initiates a power shut-down signal to that rack upon

detection of a high level alarm. The FAP also displays system status and alarm locations. Additionally, the TOF detector panels 0&1 contain 2 smoke detectors that are connected to the Phenix Fire Alarm Panel in **PCR-03**

Surveillance TV: **PCR-04** Two cameras are used to monitor IR areas at all times. These remote TVs have zoom and pan controls that are operated from the PHENIX Control Room.

Other Safety Related Issues to Remember:

1. Power to the racks in the DAQ room ***are not*** on the SMCS power trip circuits. Thus, in an emergency, power to this equipment can only be shut-off by manually tripping the appropriate circuit breakers which are located in the DAQ room in Power Panels DP-1 and DP-2.

2. A water leak detected in the DAQ room can be isolated manually by operation of the water supply and return shut-off valves. These valves are located in the SW corner of DAQ Room and are appropriately labeled.

3. Water leaks in the IR will be alarmed through the Adam controllers located in each subsystem power rack. Water flow in each rack is automatically shut-off (via Adam controller) by way of electric solenoid valves. There is also leak detection in the EM-Cal detectors and the Trenches on the floor of the IR. Other or more major water leaks in the IR can be controlled and isolated by the Watch Group. To reach them, call MCR at extension 4662.

Not yet accounted for:

Water leak general alarm for West Carriage. The Shift Leader will respond to this alarm by reporting it to the Watch Group. The Watch Group can be contacted by calling Main Control on extension 4662.

SMCS trip indicator panel list items , gen description of ops.

Fire alarm panel list TOF and all.